IN THE ABSTRACT

Please delete the entire abstract, and replace with the following new abstract:

## ABSTRACT OF THE DISCLOSURE

A method of impact compression of a condensed substance to a superdense state utilizing an axisymmetric relativistic vacuum diode having a plasma cathode and an anode-enhancer, at least a part of which is a target, placed towards the plasma cathode. The cathode is composed of a current-conducting rod and a dielectric end element, with emitting area of that exceeds maximal cross-section of the rod and the anode-enhancer. The curvature center of working surface of the anode-enhancer is located inside focal space of the collectively self-focusing electron beam having an electron energy no less than 0.2 MeV and current density no less than $10^6$ A/cm$^2$. The beam acted upon the anode-enhancer not greater than 100 ns. This method is meant for transmutation of atomic nuclei of certain chemical elements into nuclei of other chemical elements.